

CALIFORNIA DEPARTMENT OF WATER RESOURCES  
DIVISION OF FLOOD MANAGEMENT

# Monthly Report

*Central Valley Flood Protection Board Meeting*

May 18, 2018

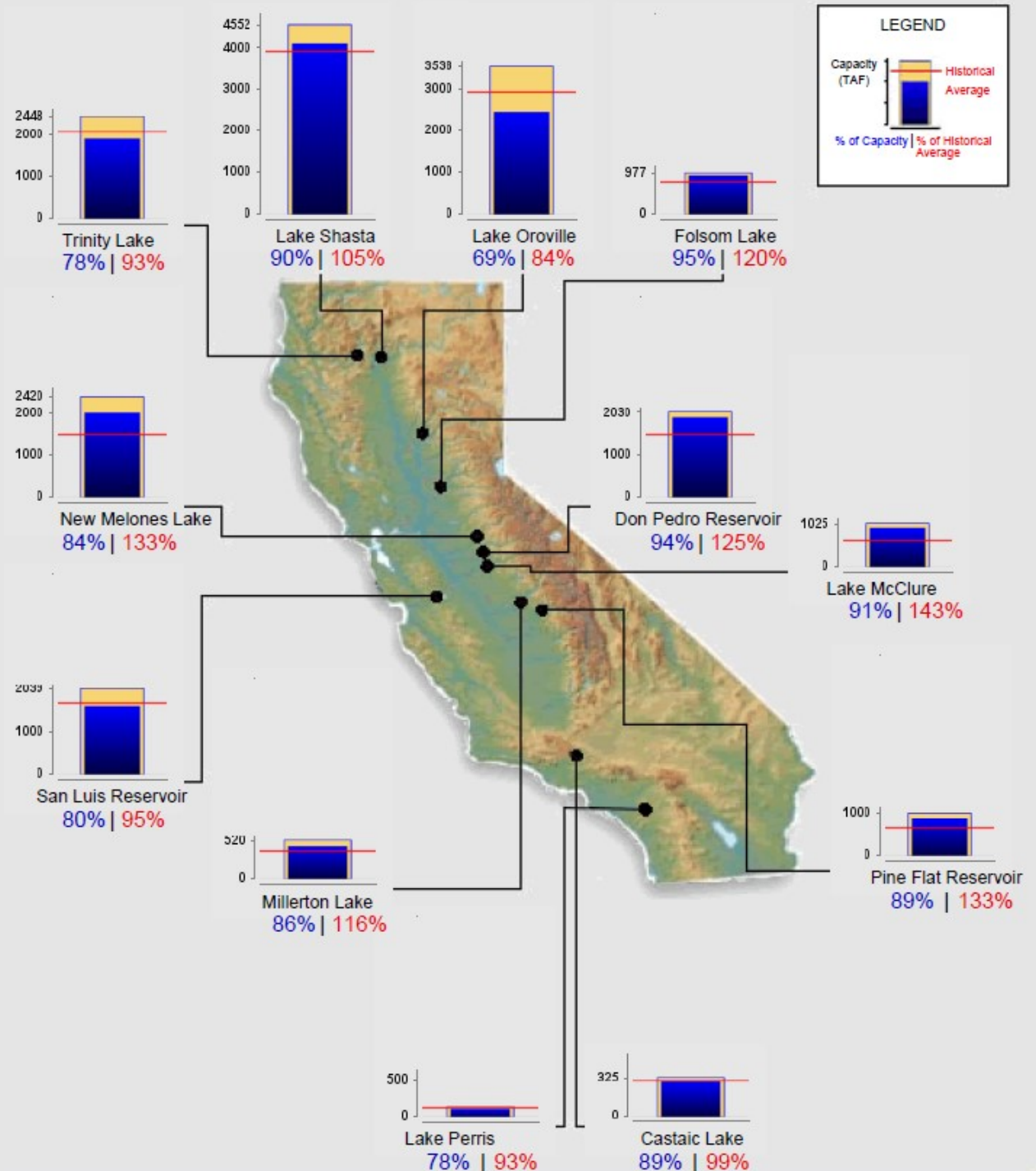
Jon Ericson

Division of Flood Management

CA Department of Water Resources

# Current Reservoirs Conditions

*As of  
May 17, 2018*



# Summary of Storage in Major Reservoirs

*As of April 30, 2018*

Area	Number of Reservoirs	Total Capacity 1000 AF	Hist Ave 1000 AF	2017 1000 AF	2018 1000 AF	% Ave	% Cap
NORTH COAST	6	3096.2	2419.7	2784.3	2354.9	97	76
SAN FRANCISCO BAY	17	714.5	528.4	525.5	471.0	89	66
CENTRAL COAST	6	993.8	693.0	685.7	432.5	62	44
SOUTH COAST	29	2122.6	1502.8	1410.9	1237.5	82	58
SACRAMENTO	43	16150.8	12939.7	14076.5	13683.1	106	85
SAN JOAQUIN	34	11478.8	7694.0	9086.5	9867.2	128	86
TULARE LAKE	6	2087.5	1057.4	1031.2	1511.7	143	72
NORTH LAHONTAN	5	1073.3	581.8	802.1	1001.9	172	93
SOUTH LAHONTAN	8	411.6	261.0	221.7	298.9	115	73
<b><i>SUBTOTAL</i></b>	154	38129.1	27677.9	30624.4	30858.6	111	81



# ERIC KOCH

*Deputy Director for  
Flood Management  
and Dam Safety*





# KRISTOPHER TJERNELL

*Deputy Director for  
Integrated Water  
Management and  
Multi-Benefit  
Programs*



Cache Creek Settling Basin

# Cache Creek Settling Basin Mercury Studies

- May 3; FMO & SAFCA reps toured basin
- May 21; next meeting to discuss
  - SAFCA's proposal details
  - DWR's potential financial commitment
  - Multi-benefits of project



# Cache Creek Settling Basin Mercury Studies

Date	Upcoming Milestone
Sep 30, 2018	USGS Future Progress Reports
Sep 30, 2018	DWR to submit Interim Report to the CVRWQCB
Sep 30, 2019	USGS Future Progress Reports
Nov 30, 2019	DWR to submit 3 <sup>rd</sup> report of finding to the CVRWQCB
Sep 14, 2020	UCD Cache Creek Historical Loads Study Final Report
Nov 30, 2020	DWR to submit Final Report to the CVRWQCB



# Informational Hearing on Nutria

## *Senate Agriculture Subcommittee on Invasive Species*

- Tuesday, May 15<sup>th</sup> at Sacramento State Capitol
- Inform state senators on nutria
- Discuss potential impacts on agriculture and water infrastructure
- Update on eradication efforts



BEAVER

GROUNDHOG



NUTRIA

MUSKRAT

Reach 13 Construction Summer 2013



Conventional Soil Bentonite  
Wall Construction

# Feather River West Levee Project & Yuba City Emergency Repairs



## ***SBFCA Dedication Ceremony & BBQ***

Saturday, June 9<sup>th</sup> at 10 am  
Shanghai Bend, Yuba City



## Cement Bentonite Panel Wall



- 36 miles of levee improvements
- Constructed in <5 years
- 200-year level flood protection for urban areas

## Reduced Flood Risk



95,000 people



102,000 acres



\$6.9 million



# Additional DWR Agenda Items

California Cooperative Snow Survey and Runoff Forecasting

*David Rizzardo, Chief of California Cooperative Snow Surveys*

San Joaquin Forecast-Coordinated Operations (F-CO)  
Decision Support System

*Nate Burley, Reservoir Coordinated Operations Section*

2018-19 Delta Levees Maintenance Subventions Program

*Sandra Maxwell, Delta Levees Program*

# Questions

**JON ERICSON**

Division of Flood Management

Department of Water Resources

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CALIFORNIA DEPARTMENT OF WATER RESOURCES  
DIVISION OF FLOOD MANAGEMENT

# Snow Pack & Runoff

*Overview of Snow Pack and Snow Melt Runoff Projections*

May 18, 2018

David Rizzardo

Division of Flood Management

CA Department of Water Resources



# Today's Topics

1. May 1st Snow Pack Conditions
2. Snow Course Data
3. University of Colorado Satellite Snow Pack Analysis
4. NASA/JPL Airborne Snow Observatory (ASO) Data
5. Comparisons of ASO and Univ. of Colorado Data
6. USBR Use of Modeled ASO data
7. May 17th Snow Sensor Measurements
8. May 15th Bulletin 120 Update

# May 1st Snow Course Measurements

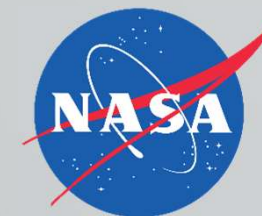
REGION	No. Courses	Average W.C.	% Avg. April 1	% Avg. May 1
North Coast	5	2.2"	7%	10%
Sacramento	62	6.7"	16%	23%
San Joaquin	55	12.0"	31%	38%
Tulare Lake	32	6.9"	22%	29%
North Lahontan	4	7.4"	27%	31%
<b>Statewide</b>			<b>21%</b>	<b>27%</b>

Note: Most courses below 6,000' elevation in the Northern Sierra and below 8,000' elevation in the Central and Southern Sierra were melted out by the May 1<sup>st</sup> snow course measurements.



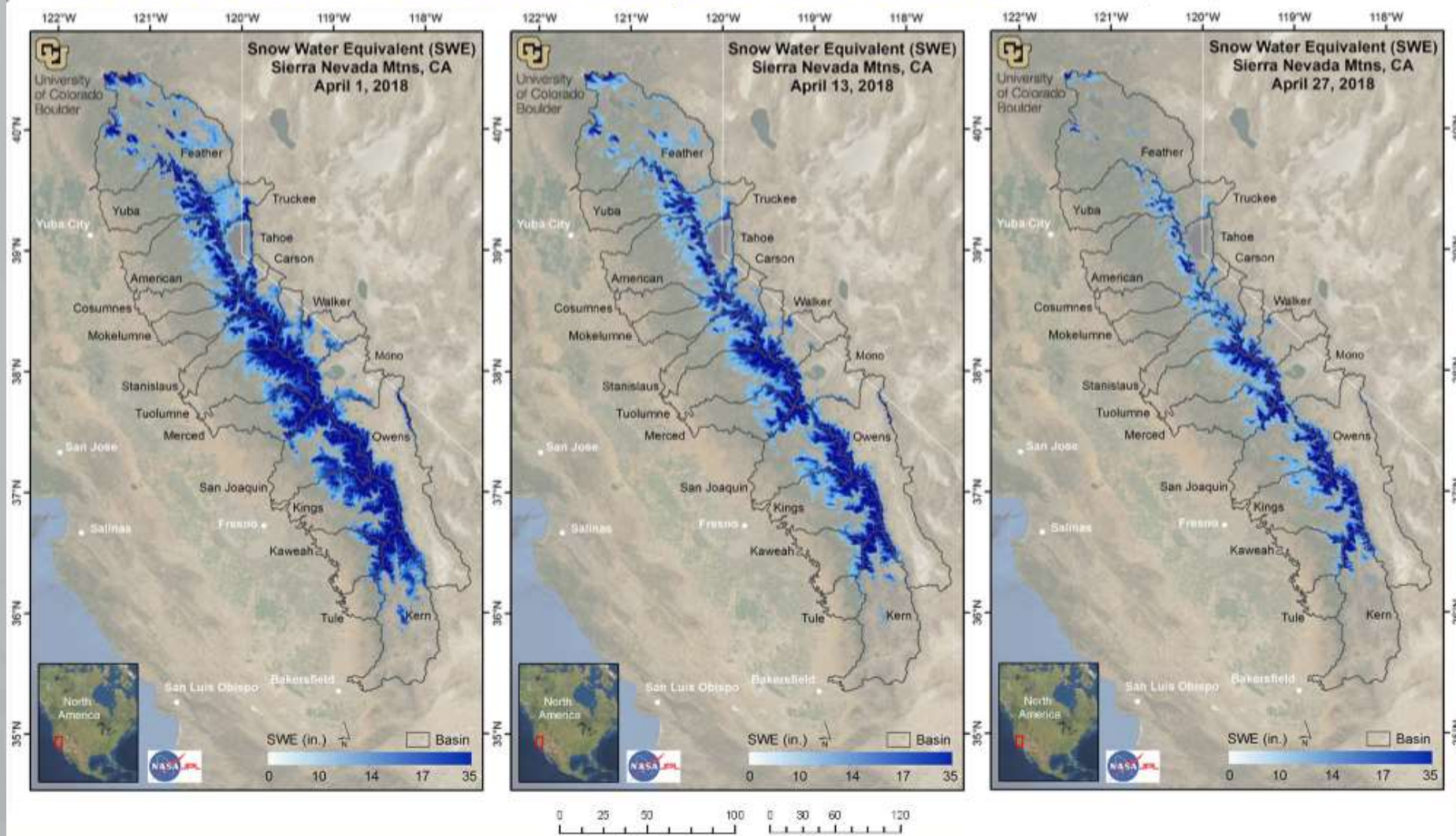
University  
of Colorado  
Boulder

# Satellite Analysis

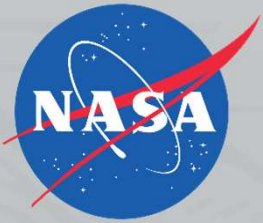


## Current Sierra Nevada snowpack conditions

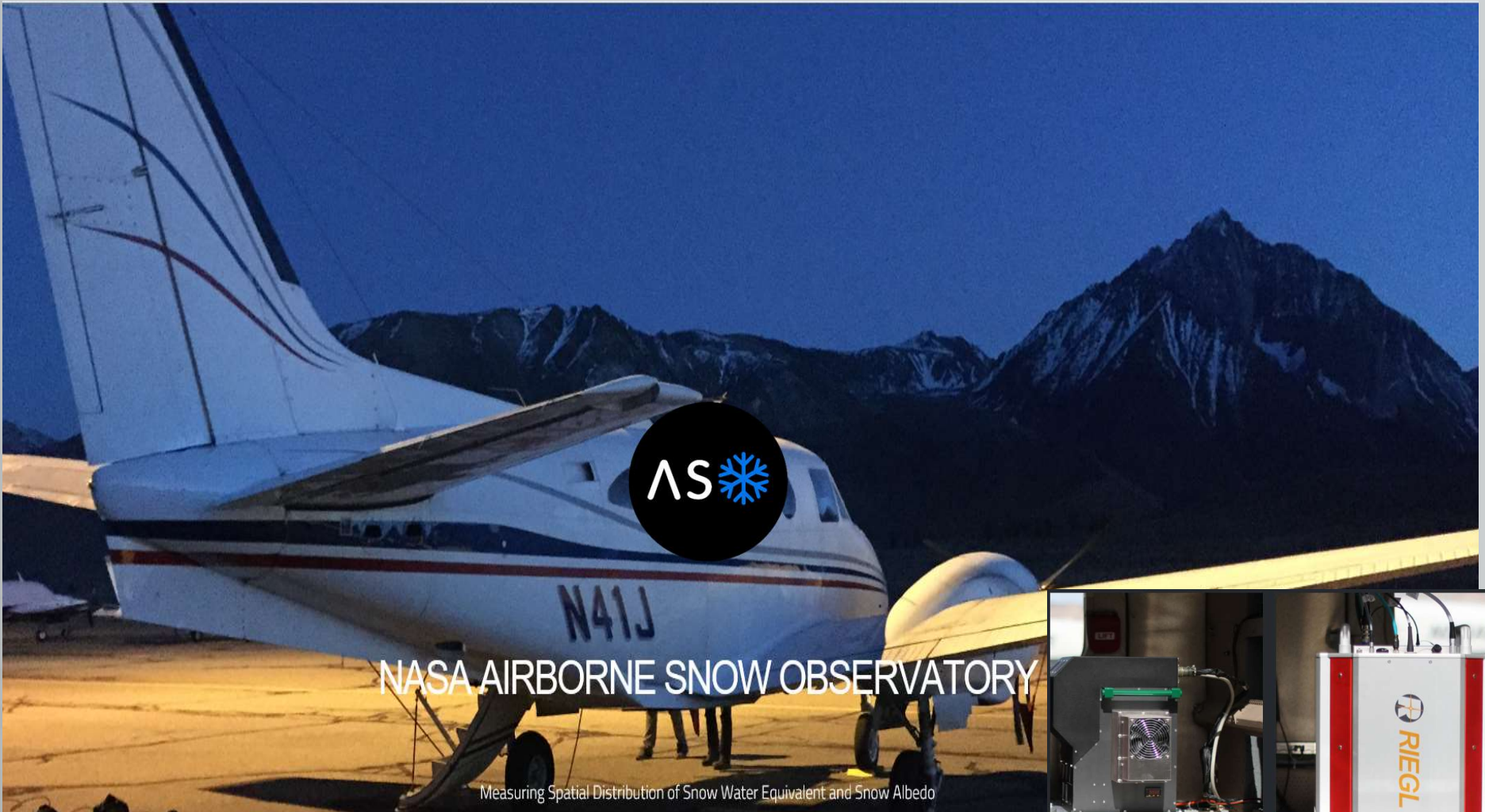
4/27/2018





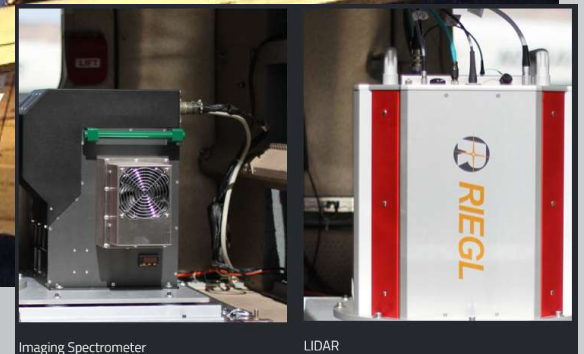


# Airborne Snow Observatory



NASA AIRBORNE SNOW OBSERVATORY

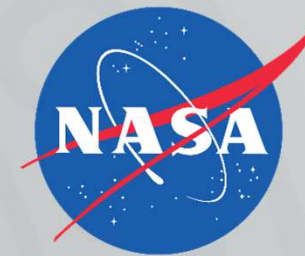
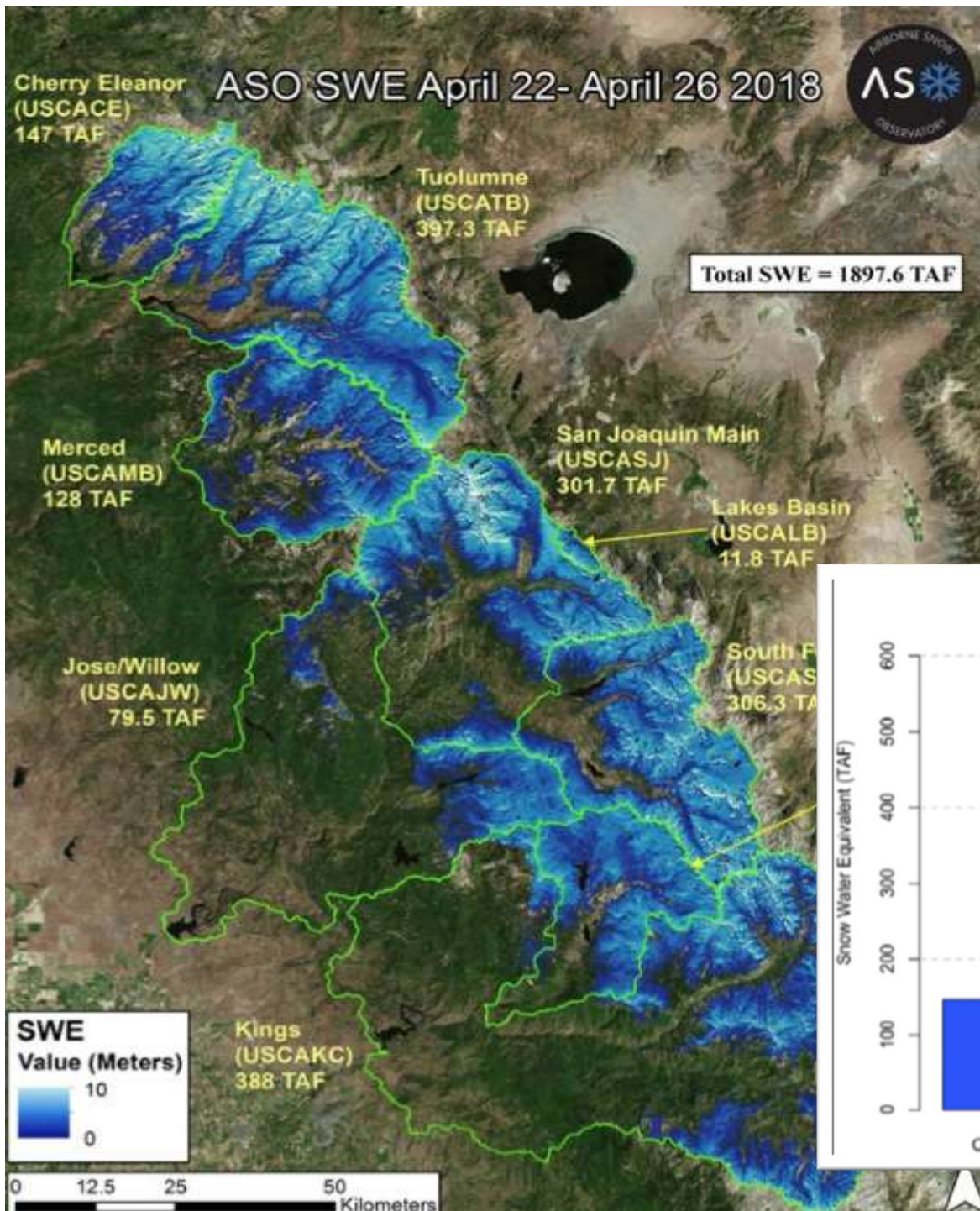
Measuring Spatial Distribution of Snow Water Equivalent and Snow Albedo



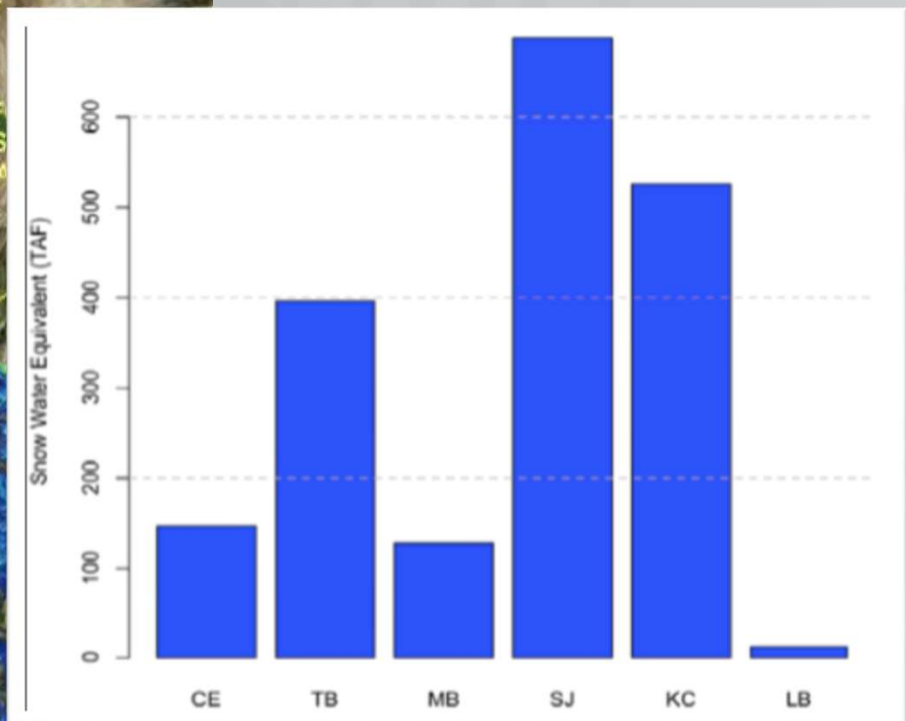
Imaging Spectrometer

LIDAR





# April 2018 Surveys





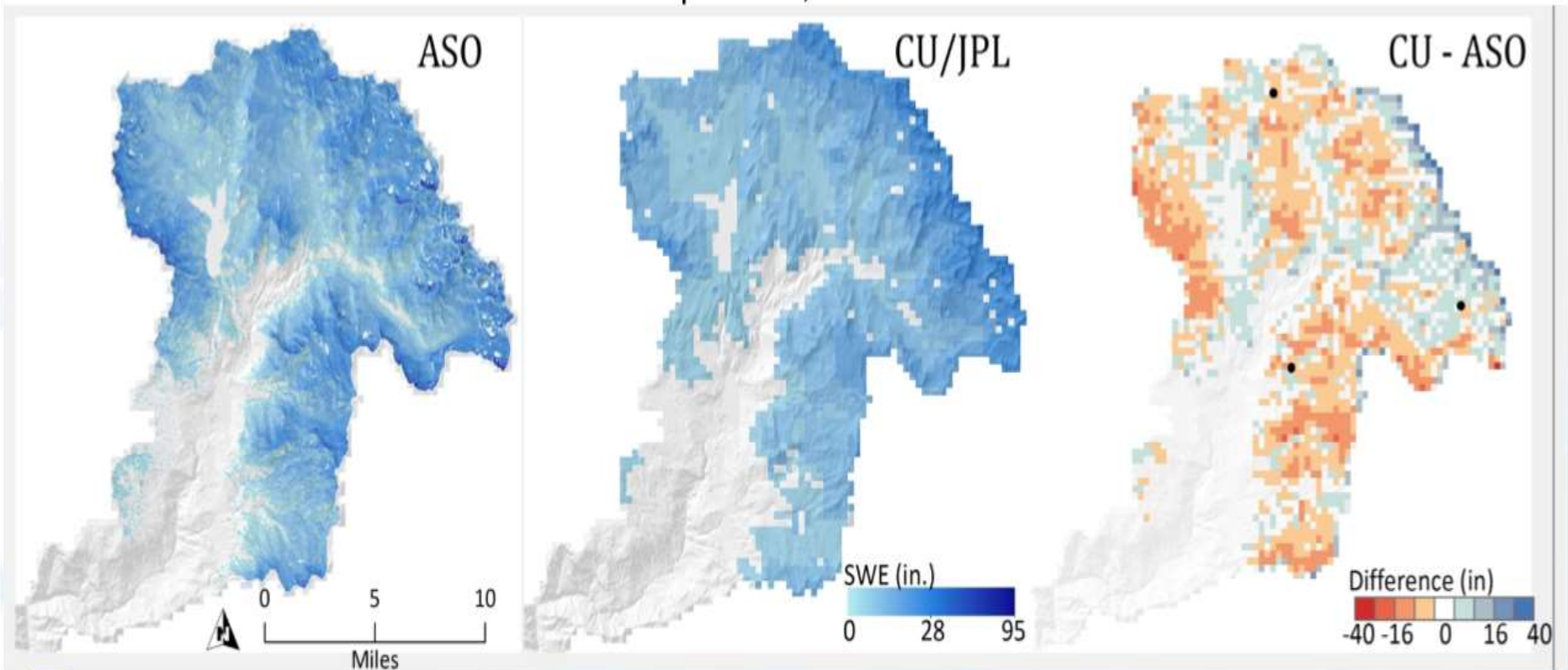
# Satellite Snow Data

VS.



Validation against 2018 NASA Airborne Snow Observatory flights

Kings River  
April 26<sup>th</sup>, 2018



University of Colorado  
Boulder

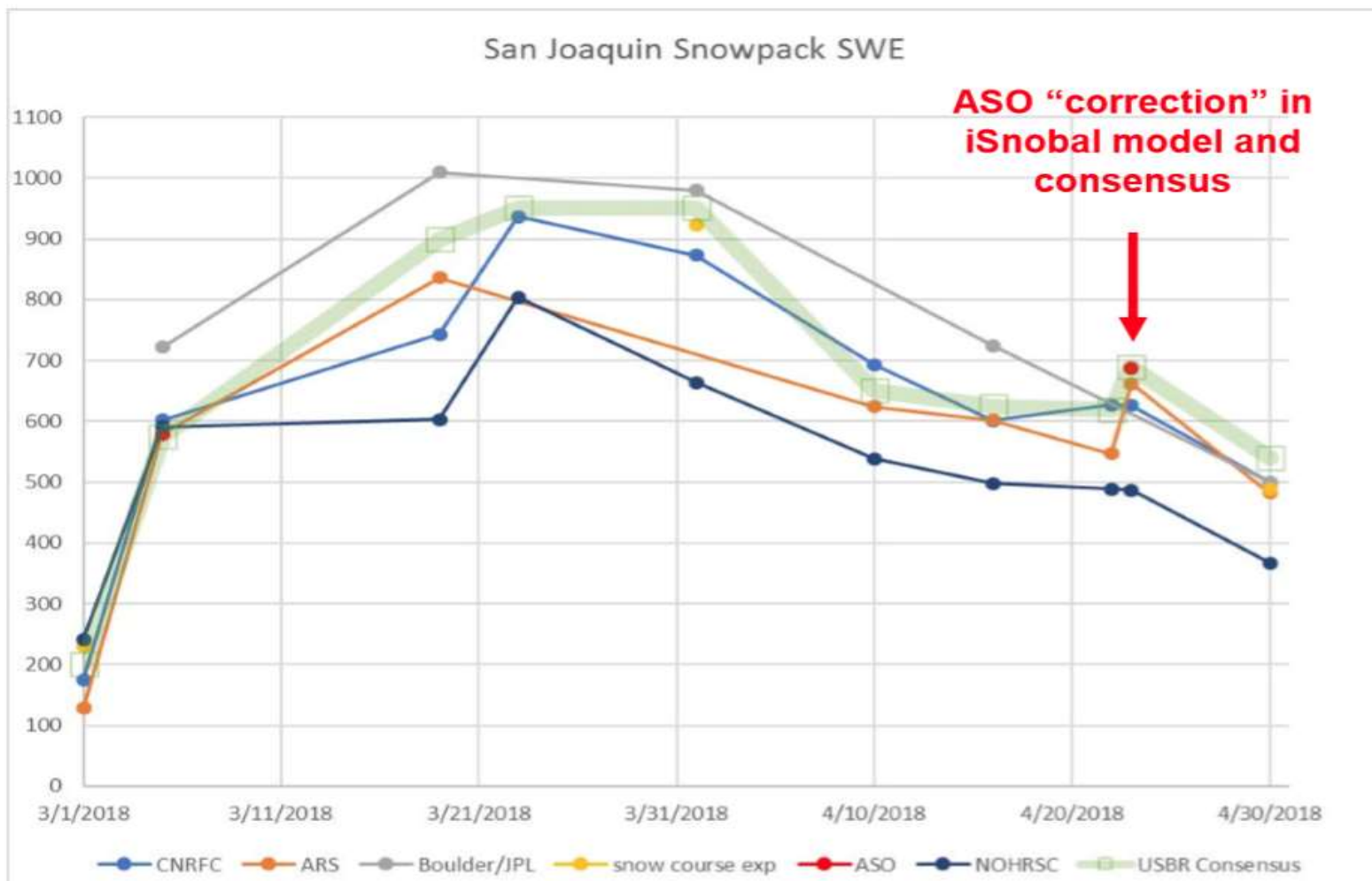




# Operational Use of Modeled Snow Data

# USBR Friant Operations

## Tracking Snowpack SWE and Filling In the Gaps between ASO



# May 17th Snow Sensor Measurements

REGION	No. Sensors	Average W.C.	% Avg. April 1	% Avg. May 17
Northern Sierra	30	1.9"	7%	16%
Central Sierra	42	3.2"	11%	20%
Southern Sierra	27	2.1"	8%	14%
Statewide			9%	17%

Note: Most sensors below 8,000' elevation in the Northern Sierra and below 9,000' elevation in the Central and Southern Sierra are now melted out. Thunderstorms this past week reduced solar radiation and thus slowed melt rate. Limited dusting of snow above 9,500 ft. also reset albedo in some locations.

# May 15th Bulletin 120 April-July Runoff Forecast Update

WATERSHED	MEDIAN APRIL-JULY FORECAST (TAF)	% OF AVG
Shasta Lake total Inflow	1,300	74%
Sacramento River at Bend Bridge	1,850	76%
Feather River at Oroville	1,280	82%
Yuba River near Smartsville	780	81%
American River below Folsom Lake	1,070	89%
Mokelumne River inflow to Pardee	370	81%
Stanislaus River below Goodwin	570	84%

WATERSHED	MEDIAN APRIL-JULY FORECAST (TAF)	% OF AVG
Tuolumne River below La Grange	1,070	90%
Merced River below Merced Falls	490	79%
San Joaquin River below Millerton	1,010	82%
Kings River below Pine Flat	970	80%
Kaweah River below Terminus	175	61%
Tule River below Lake Success	25	40%
Kern River inflow to Lake Isabella	240	52%

# Questions

**DAVID RIZZARDO**

Division of Flood Management

Department of Water Resources

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# San Joaquin F-CO

*Update on the Decision Support System*

May 18, 2018

Nate Burley

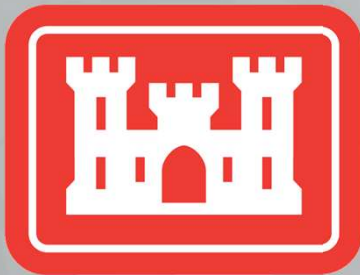
Division of Flood Management

CA Department of Water Resources



**Reservoir  
Operators**

**Downstream  
Operators**



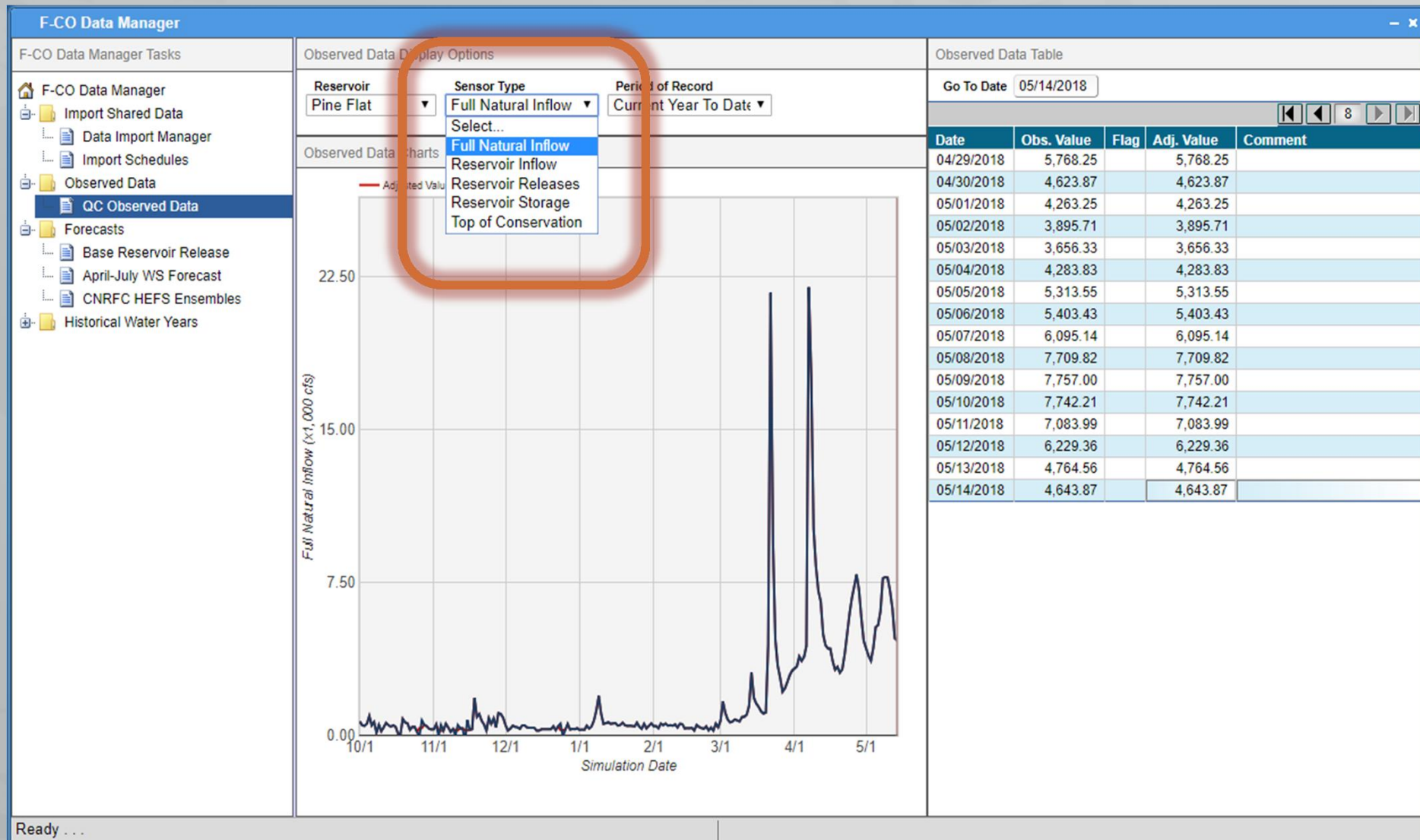
# **San Joaquin F-CO Program**

**Improve System  
Ops & Unified  
Funding Requests**

**Quarterly Meetings,  
Modeling  
Presentations, &  
Data Exchange**



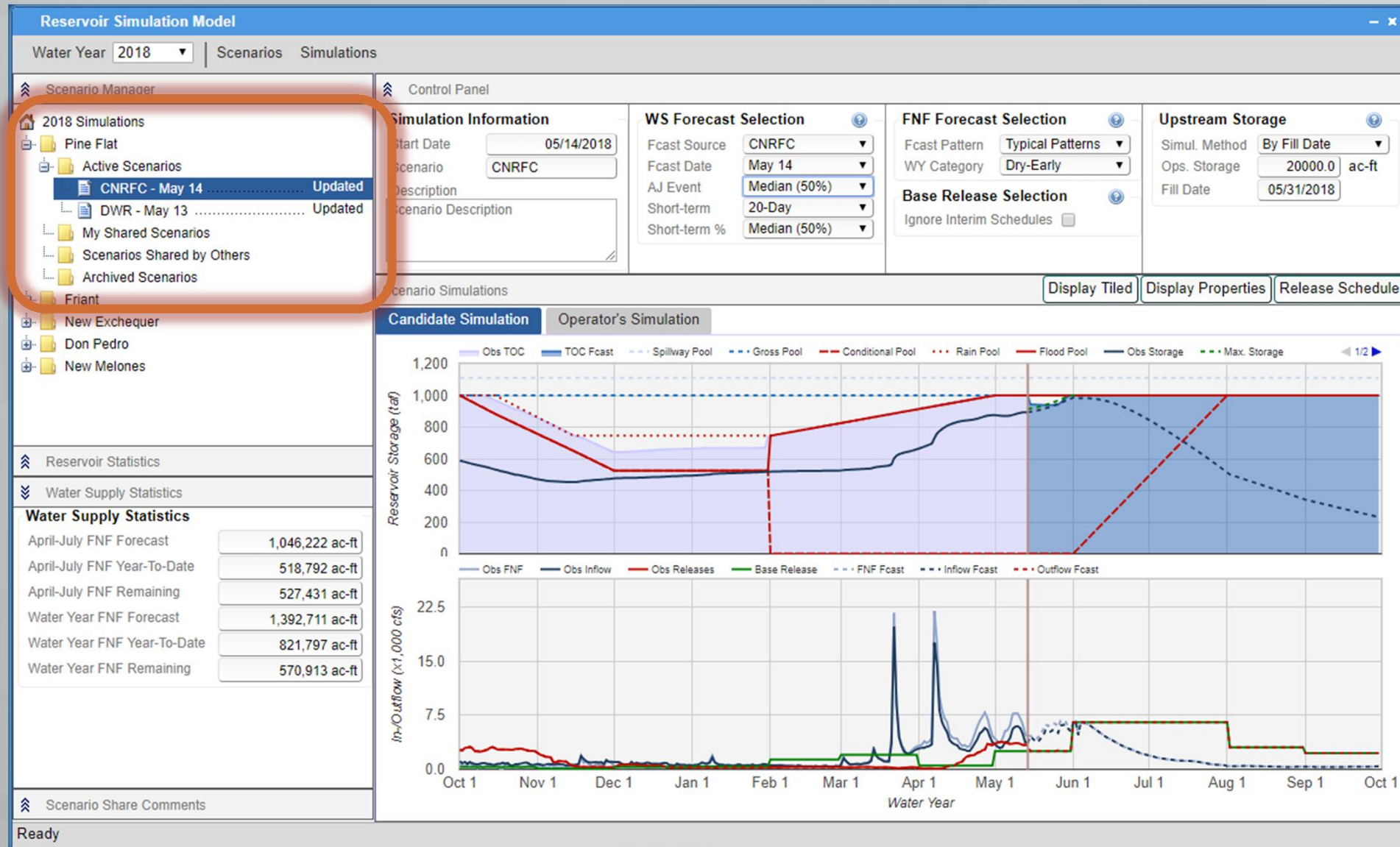


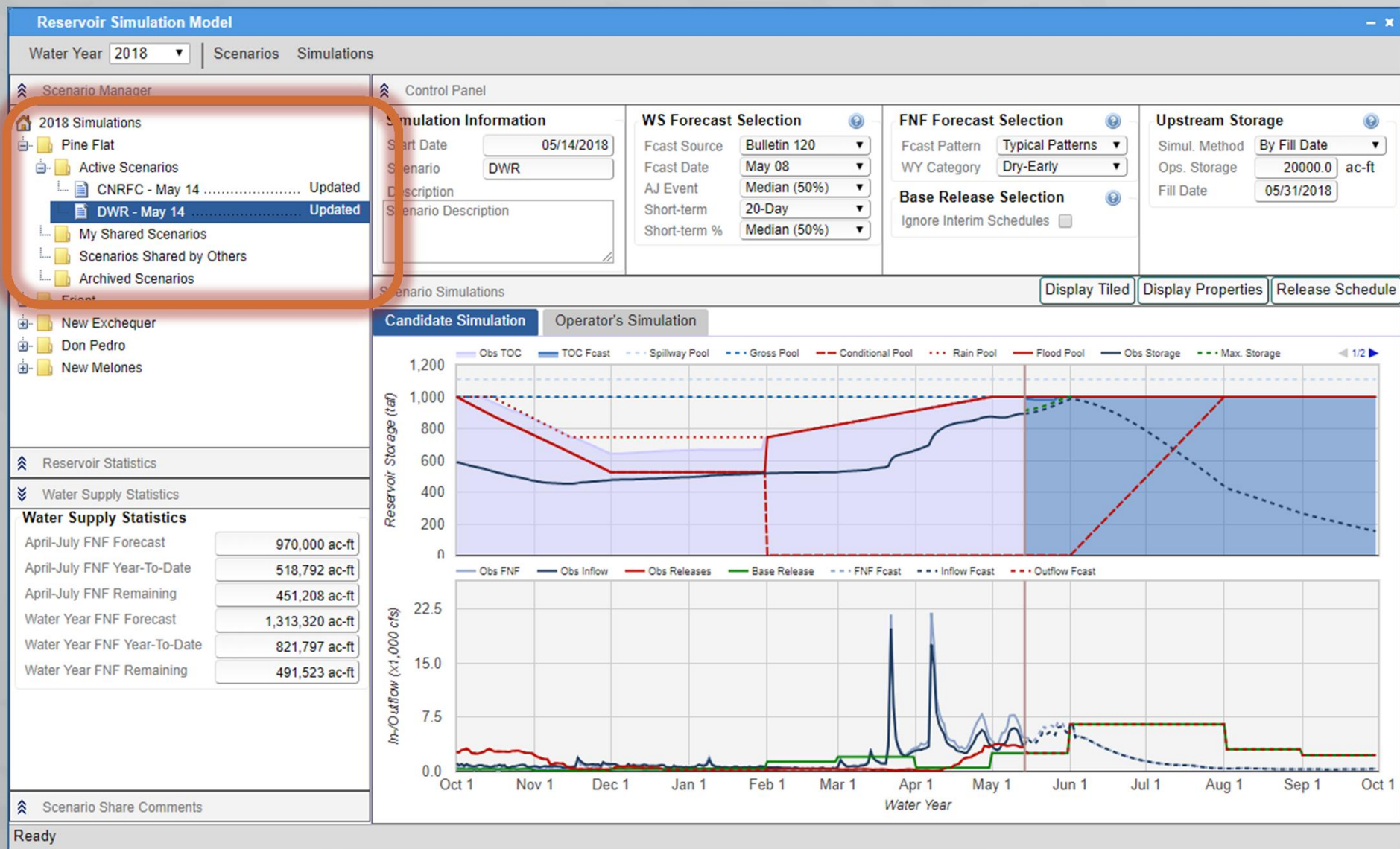




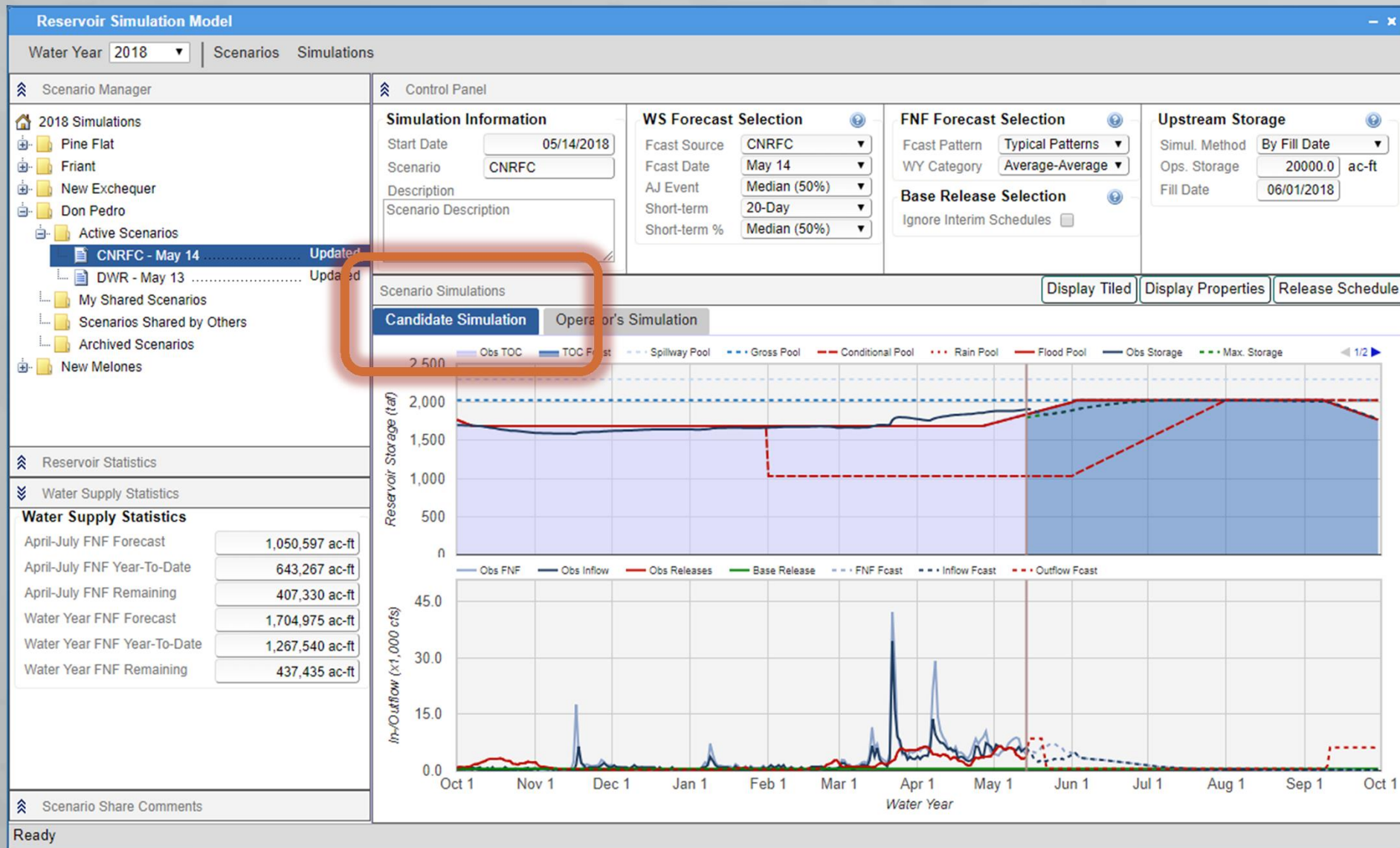


Ready . . .









# Reservoir Simulation Model

Water Year **2018** | Scenarios Simulations

## Scenario Manager

### 2018 Simulations

- Pine Flat
- Friant
- New Exchequer
- Don Pedro
- Active Scenarios
  - CNRFC - May 14 ..... Updated
  - DWR - May 13 ..... Updated
- My Shared Scenarios
- Scenarios Shared by Others
- Archived Scenarios
- New Melones

## Reservoir Statistics

### Water Supply Statistics

April-July FNF Forecast	1,050,597 ac-ft
April-July FNF Year-To-Date	643,267 ac-ft
April-July FNF Remaining	407,330 ac-ft
Water Year FNF Forecast	1,704,975 ac-ft
Water Year FNF Year-To-Date	1,267,540 ac-ft
Water Year FNF Remaining	437,435 ac-ft

## Scenario Share Comments

Ready

## Control Panel

### Simulation Information

Start Date **05/14/2018**  
 Scenario **CNRFC**  
 Description  
 Scenario Description

### WS Forecast Selection

Fcast Source **CNRFC**  
 Fcast Date **May 14**  
 AJ Event **Median (50%)**  
 Short-term **20-Day**  
 Short-term % **Median (50%)**

### FNF Forecast Selection

Fcast Pattern **Typical Patterns**  
 WY Category **Average-Average**  
**Base Release Selection**  
 Ignore Interim Schedules ☐

### Upstream Storage

Simul. Method **By Fill Date**  
 Ops. Storage **20000.0** ac-ft  
 Fill Date **06/01/2018**

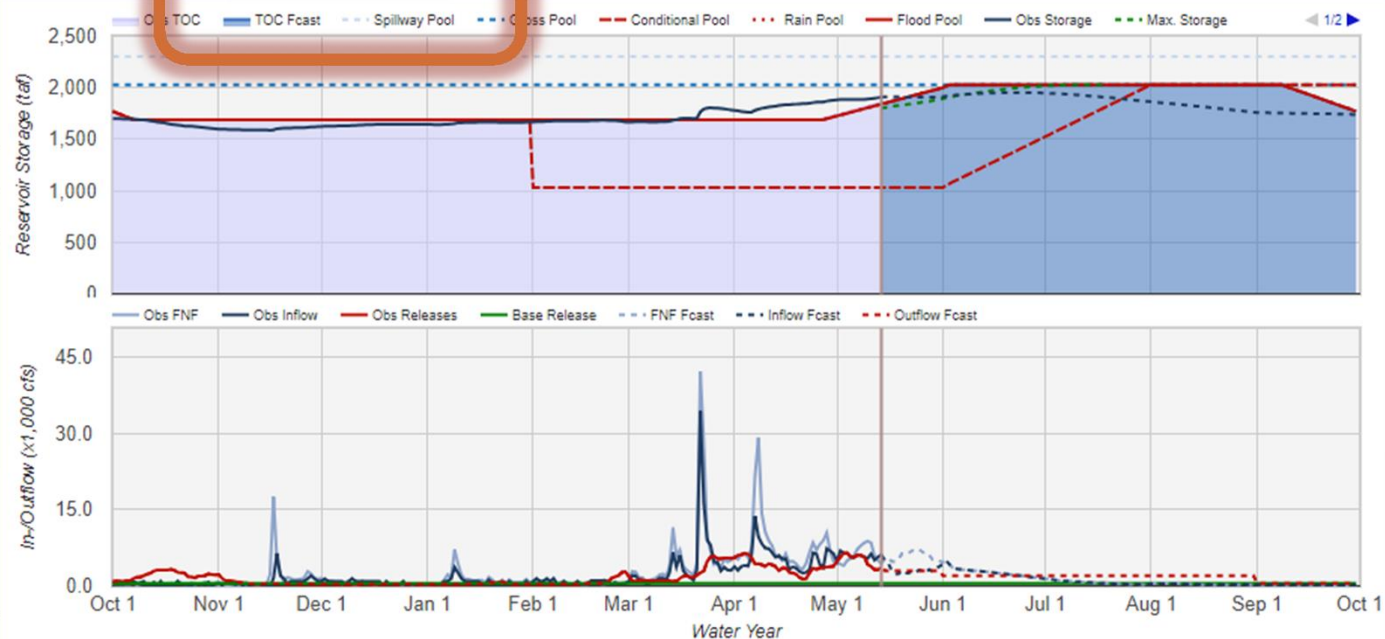
## Scenario Simulations

Candidate Simulation **Operator's Simulation**

Display Tiled

Display Properties

Release Schedule



# Reservoir Simulation Model

Water Year **2017** | Scenarios | Simulations

## Scenario Manager

- 2017 Simulations
  - Pine Flat
  - Active Scenarios
    - DWR120 - Aug 31** Updated
    - CNRFC - Apr 1
  - My Shared Scenarios
  - Scenarios Shared by Others
  - Archived Scenarios
- Friant
- New Exchequer
- Don Pedro
- New Melones

## Reservoir Statistics

## Water Supply Statistics

### Water Supply Statistics

April-July FNF Forecast	2,070,000 ac-ft
April-July FNF Year-To-Date	2,688,303 ac-ft
April-July FNF Remaining	0 ac-ft
Water Year FNF Forecast	4,008,246 ac-ft
Water Year FNF Year-To-Date	3,956,331 ac-ft
Water Year FNF Remaining	51,915 ac-ft

## Scenario Share Comments

Ready

- Rerun Simulation
- Update WS Forecast
- Export Simulation

## Control Panel

### Simulation Information

Simulation Date: 08/31/2017  
 Simulation ID: DWR120  
 Scenario Description

### WS Forecast Selection

Fcast Source: Bulletin 120  
 Fcast Date: Apr 01  
 AJ Event: Low (90%)  
 Short-term: None

### FNF Forecast Selection

Fcast Pattern: Typical Patterns  
 WY Category: Wet-Average

### Base Release Selection

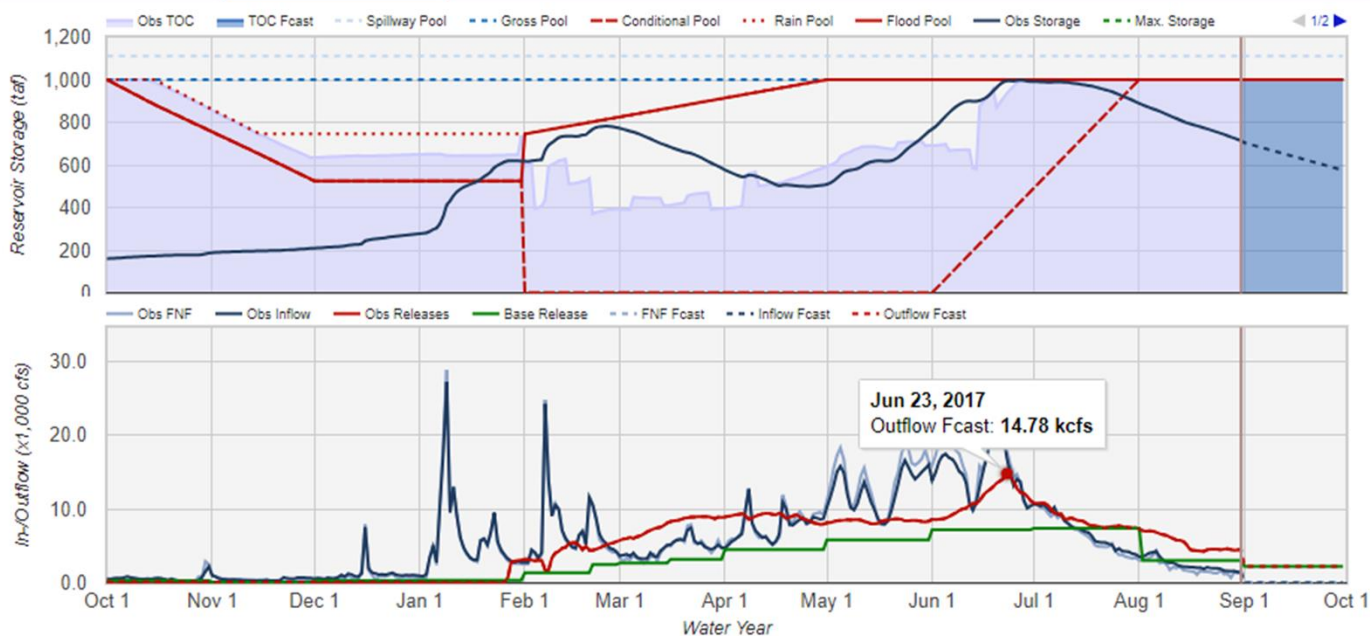
Ignore Interim Schedules ☐

### Upstream Storage

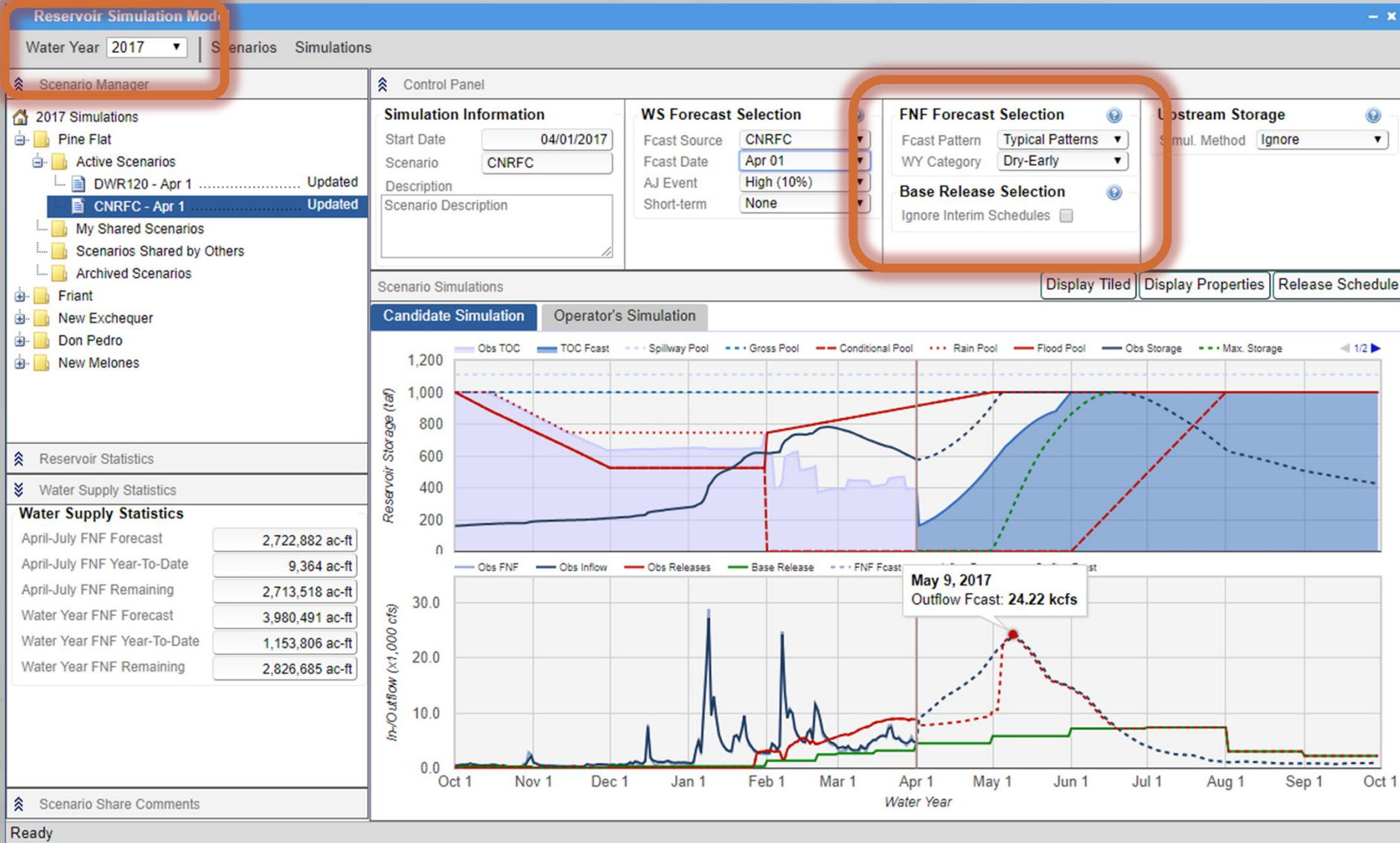
## Scenario Simulations

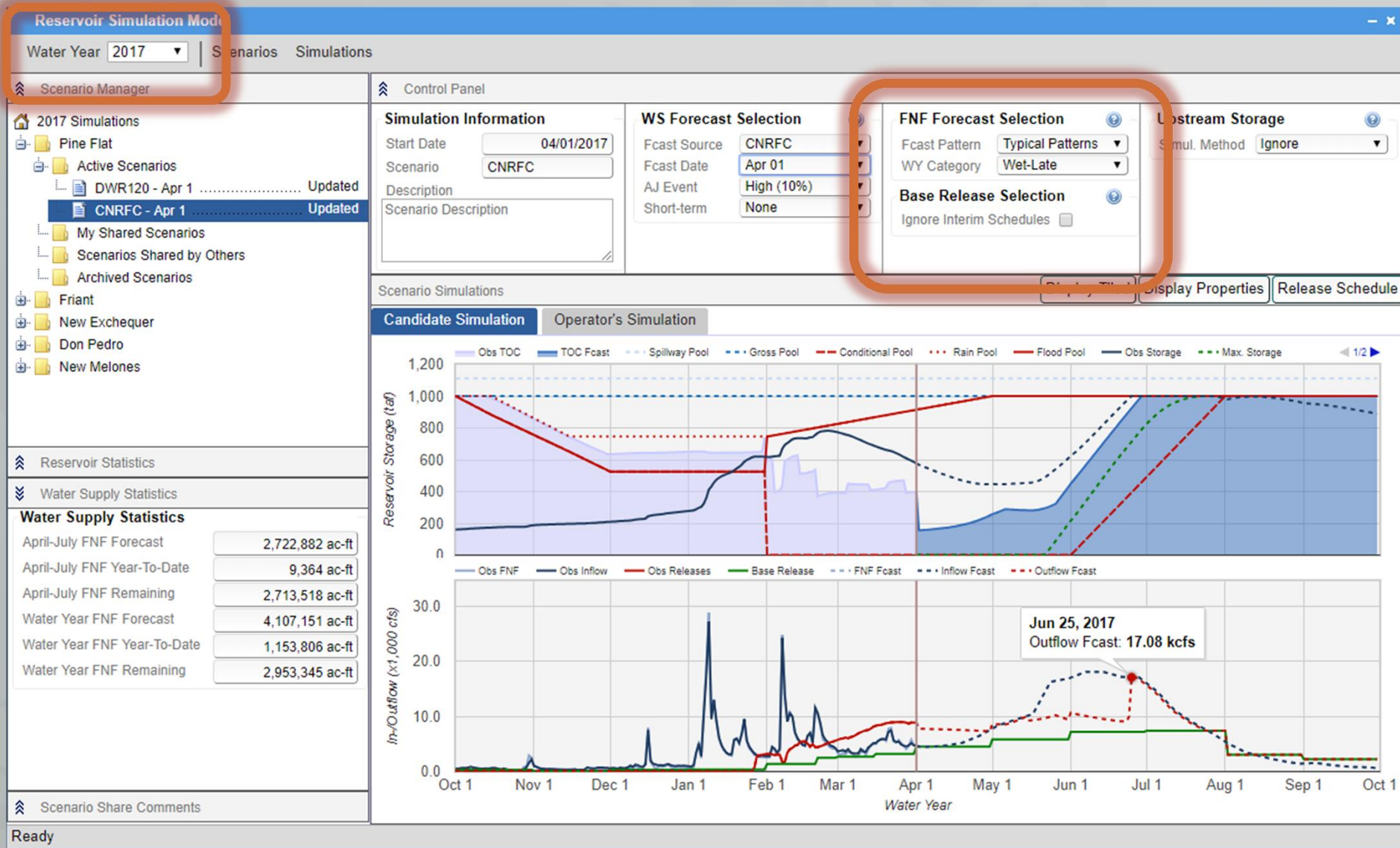
Display Tiled | Display Properties | Release Schedule

### Candidate Simulation | Operator's Simulation

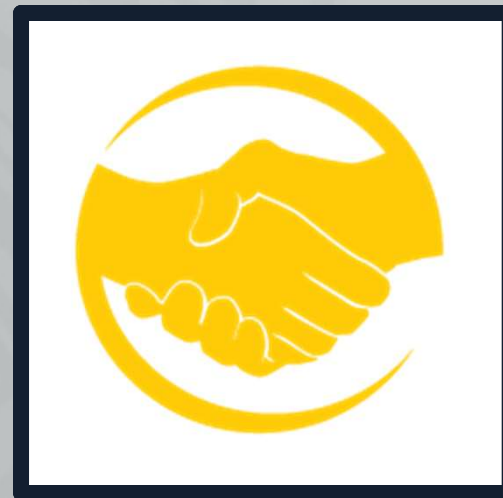








# Next Steps





# Questions

**NATE BURLEY**

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